

Silicon NPN Power Transistors

2SD1159

DESCRIPTION

- With TO-220 package

APPLICATIONS

- TV horizontal deflection output,
- High-current switching applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter

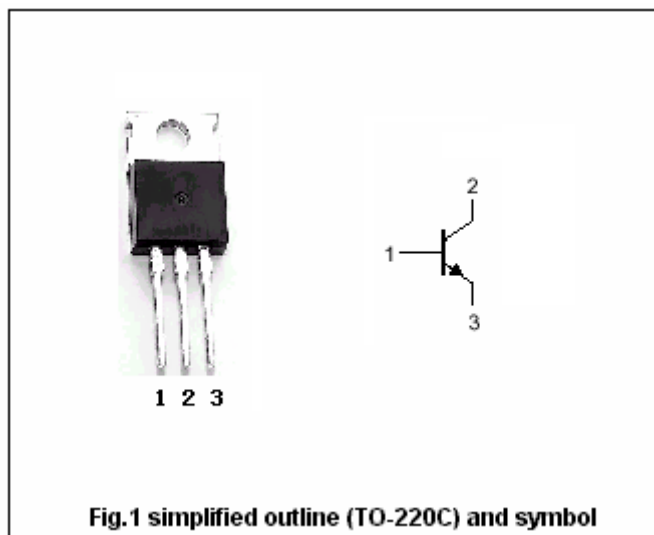


Fig.1 simplified outline (TO-220C) and symbol

Absolute maximum ratings (Ta=25°C)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	200	V
V_{CEO}	Collector-emitter voltage	Open base	60	V
V_{EBO}	Emitter-base voltage	Open collector	6	V
I_C	Collector current (DC)		4.5	A
I_{CM}	Collector current-peak		10	A
P_C	Collector power dissipation	$T_C=25^\circ\text{C}$	40	W
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-55~150	$^\circ\text{C}$

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CHARACTERISTICS

T_j=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C =5mA ; R _{BE} =∞	60			V
V _{(BR)CBO}	Collector-base breakdown voltage	I _C =5mA ; I _E =0	200			V
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E =5mA ; I _C =0	6			V
V _{CEsat}	Collector-emitter saturation voltage	I _C =4A, I _B =0.4A		0.5	1.0	V
V _{BEsat}	Base-emitter saturation voltage	I _C =4A, I _B =0.4A			1.5	V
I _{CBO}	Collector cut-off current	V _{CB} =40V; I _E =0			0.1	mA
I _{EBO}	Emitter cut-off current	V _{EB} =5V; I _C =0			0.1	mA
h _{FE-1}	DC current gain	I _C =1A ; V _{CE} =5V	30		160	
h _{FE-2}	DC current gain	I _C =4A ; V _{CE} =5V	25			
f _T	Transition frequency	I _C =1A ; V _{CE} =5V		10		MHz

Switching times

t _f	Fall time	I _C =5A; I _{B1} =-I _{B2} =0.5A; V _{CC} =50V		0.2	0.5	μs
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PACKAGE OUTLINE

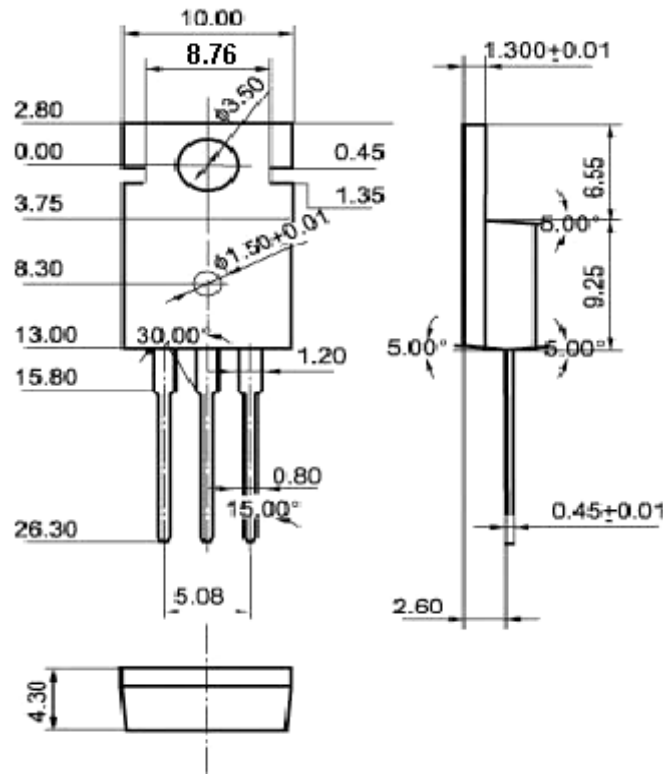


Fig.2 outline dimensions (unindicated tolerance: ±0.10 mm)

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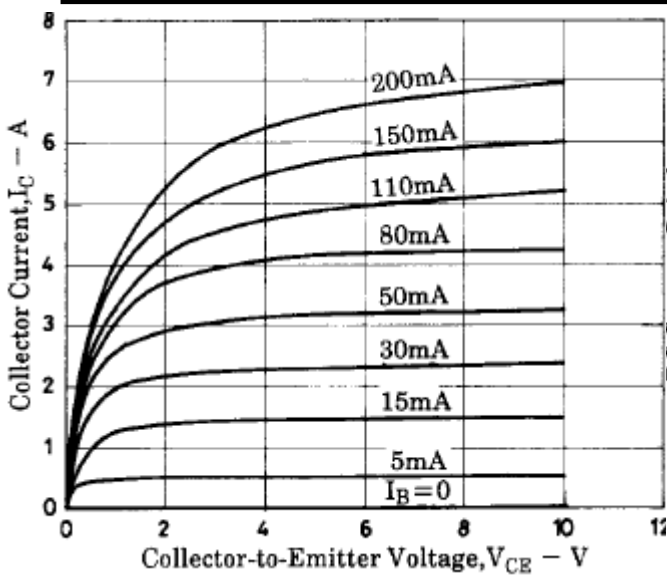


Fig.3 Static Characteristic

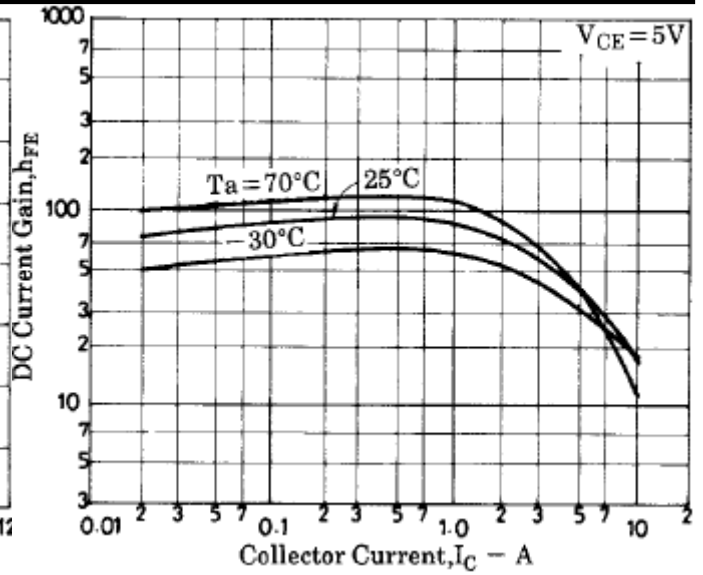


Fig.4 DC current Gain

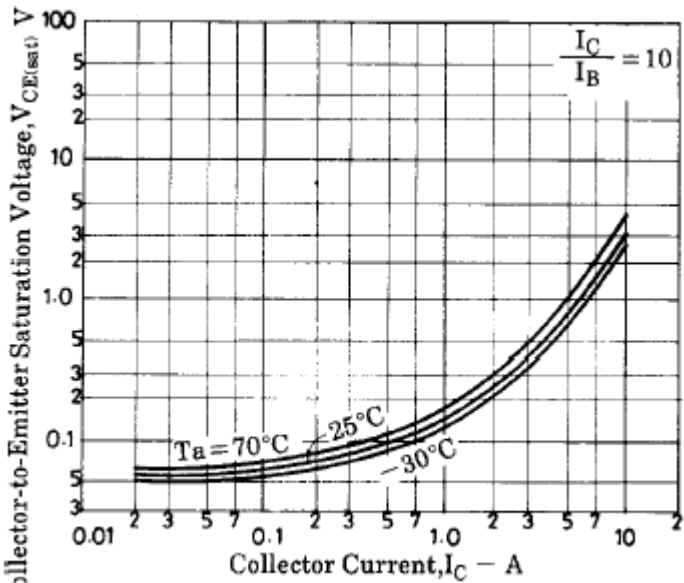


Fig.5 Collector-Emitter Saturation Voltage

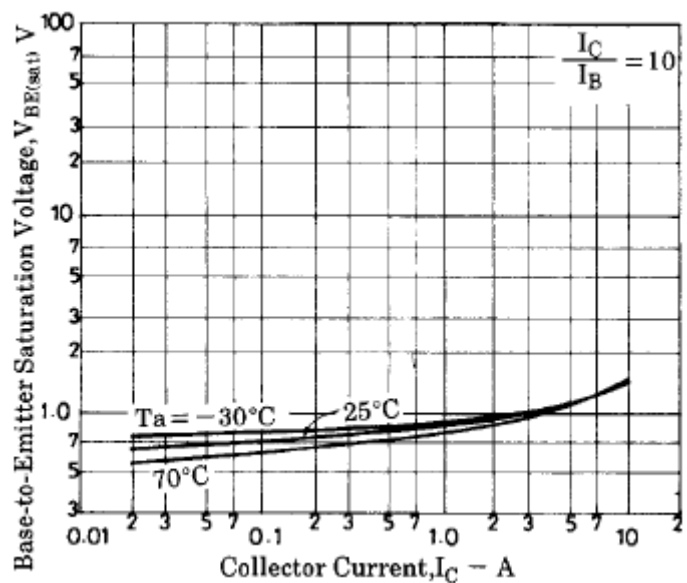


Fig.6 Base-Emitter Saturation Voltage

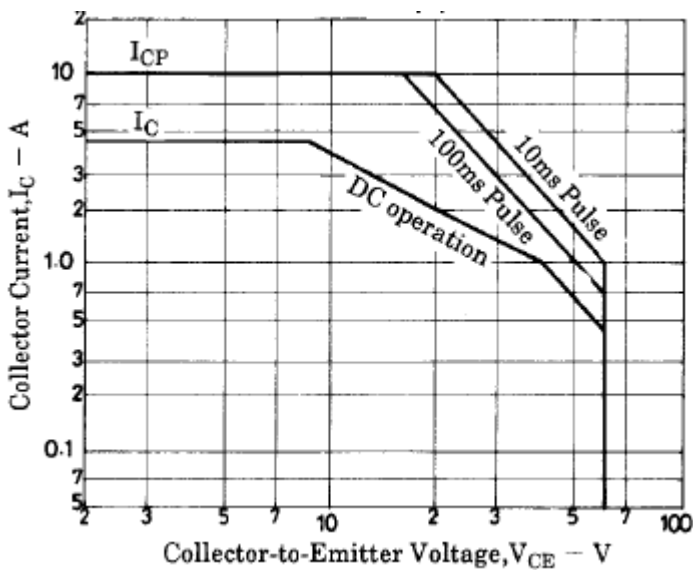


Fig.7 Safe Operating Area